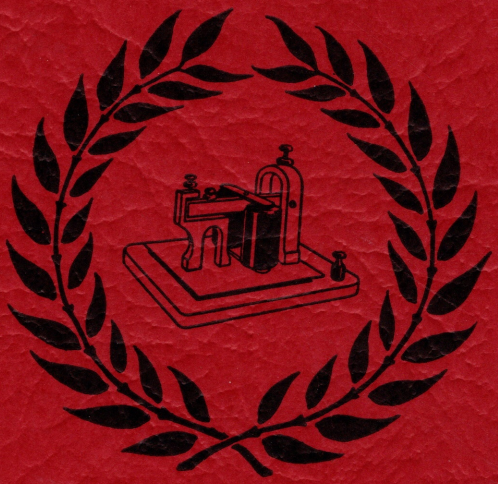
TELETYPE & TYPEWRITER KEYBOARD OPERATION



Educational Bureau

THE ORDER OF RAILROAD TELEGRAPHERS

SAINT LOUIS, MISSOURI

PREFACE

Considerable space has been used in the columns of our magazine, during the past several years, to discuss the use of some good touch system by Morse telegraphers. This, before we realized the urgency of a situation that took us by surprise,—installation of Teletype machines in many of our principal telegraph offices to supplant Morse operation.

In 1936 a Manual was developed which measured up to our expectations as a medium of training by which our students developed very rapidly as touch operators of the typewriter. Its use verified beyond any shadow of doubt, the assertion we have always made that touch typewriting skill is readily transferable to Teletype or perforator keyboards. To state the matter in the simplest possible language, touch writing is ability to locate key positions by instinct rather than by sight.

Instinct writing is the result of habits deliberately formed by practice following a predetermined outline. The principles of this habit-forming process are essentially the same for either the typewriter or teletype though the mechanics may differ. Fundamentally, the *system* is the important thing. The system we are about to consider is indeed a hybrid creature since it must provide an effective outline for use *either* with the typewriter or teletype.

Our system consists of keyboard charts and a carefully selected group of orderly exercises and lessons. The purpose of the keyboard chart is to assign certain fingers to certain keys; and the purpose of the exercises and lessons is to drill the student in the art of finding the keys by instinct. The practice material of this edition of the Manual was very carefully engineered by persons having a wide experience with the problems of combination Morse-printer men.

Acknowledgment is made of the material taken from Specification 10-1 of the Communications Section, Association of American Railroads. Also, we gratefully acknowledge the courtesy of the Western Union Telegraph Company in permitting us to use their Automatic and Simplex Keyboard Exercises, 1 to 25 inclusive.

Approved
G. E. LEIGHTY,
President.

J. E. LOVING
Director-Educational Bureau,

April, 1960.

Manual of

Typewriter and Teletype

Keyboard Operation

Preliminary Instructions.—Pressed as most of us are for time and burdened with many details of this and that, the reader will be agreeably surprised with the simplicity of *these* instructions. Our purpose is to teach you in the least possible time how to become a competent operator and the methods we suggest have each been given the acid test. The first requisite is a proper attitude on the part of the student and the second—no less important—is a resolute determination to follow these instructions to the letter.

Our system contemplates a series of habits desirable for the student to form. Habit No. 1 is the assuming of a proper writing position. Place your chair in a position not too close nor too far from the machine. The proper distance can be determined by experiment, and should be just far enough to permit the elbows to hang easily at the sides when the fingers of both hands are in "normal" position on the keyboard. By "proper" position is meant that the student should sit erect, but not tense, with both feet flat on the floor.

The keyboard diagram should be placed where it can be readily seen. For the first few practice periods, before the student has thoroughly memorized the keyboard, it will be necessary for him to look at the diagram, to locate letters, instead of looking at the keys on the machine. It has been our experience that the student will soon have a picture of the keyboard fixed in mind and should, after a very few practice periods, be able to "think" where the keys are instead of looking at the keyboard itself. The fact is, *thought* is faster than *vision*, and the student will do well to strive to form definite original *thinking* habits. It is also a fact that the *conscious* mental effort required to master new and unfamiliar operations, becomes *subconscious* power once the new operations become fixed *habits*.

Select a time of day when it is most convenient to study. If at all possible, make it a point to practice at about the *same* hour each day. Do not practice when very tired, or over too *long* a period of time on a given day. This is important. If possible, select a time of day when you will be free from interruptions. One hour, or an hour and a half of *concentrated* study will produce infinitely better results than countless hours of drudgery without a definite plan.

Normal Position of the Hands.—A system is an assemblage of essential principles. There must be some distinct method or plan. The principles have a definite relationship with each other in a regular order of subordination to some *foundational* fact, or principle. The foundation of this simple and effective system is similar to that of other touch writing systems, namely, the key or *normal* position of the hands. Stated another way, it is the *home* position on the keyboard. By "home" position, is meant the normal position for the fingers of each hand when the hands are at rest ready to write on the keyboard using the touch system. This is a fundamental requirement.

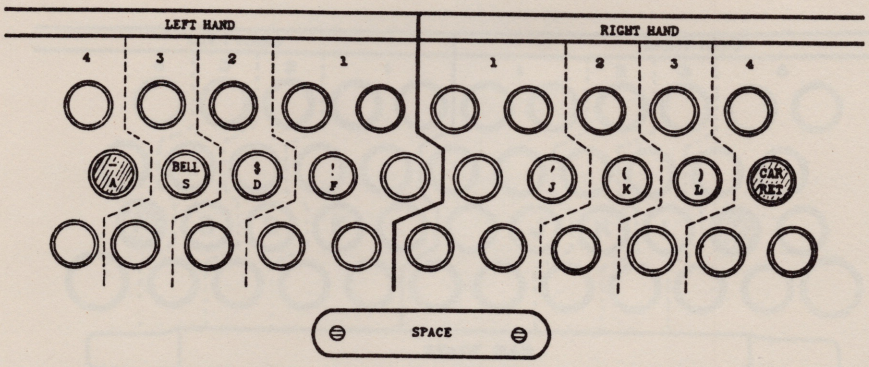


Fig. 1—Normal Finger Positions.

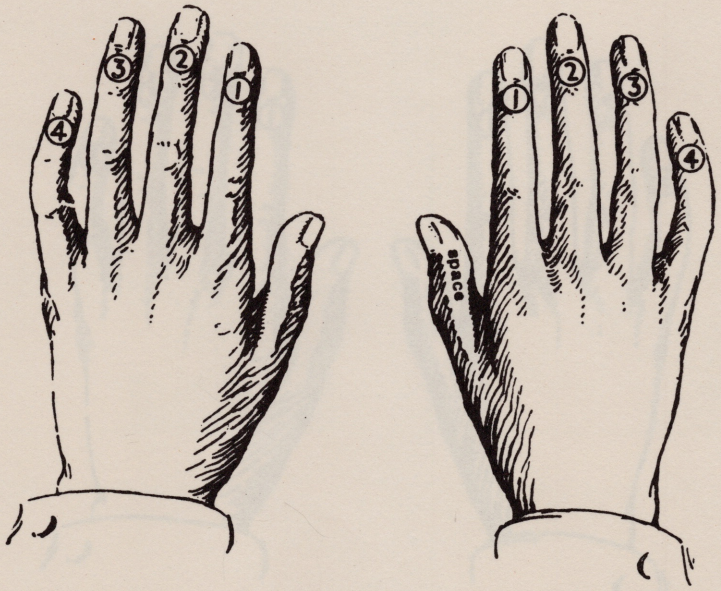


Fig. 1-A—Showing Finger Assignment. All spacing is done with the thumb of the right hand.

Fig. 1 shows a teletype or perforator keyboard with all the keys blanked except the four keys constituting the *normal* position for the fingers of either hand. Fig. 1-A further illustrates the finger assignment. The student should consider very carefully the *normal* key for each finger and should be very careful during the first few practice exercises to see that each finger is placed in that position, before attempting to write the exercises. The *shaded* letters shown in Fig. 1 will be referred to as the *guide keys.* The guide keys are the keys upon which the small fingers,—the fourth fingers—are placed when the hands are at rest in normal position.

Normal Position of Hands (Typewriter Keyboard). — The *principle* of touch keyboard operating is at first a painstaking exploration of the keyboard by "feel" or "instinct" and the guide keys serve as anchors to keep the hands in the proper position to accurately locate any letter on the keyboard once its location is memorized. Fig. 2 shows the keyboard of a standard typewriter, all of the keys of which have been blanked, except those comprising the *normal* position for the four fingers of each hand. Because the practice exercises of this Manual are to be used with either the typewriter or teletype, both keyboards are treated in this preliminary discussion.

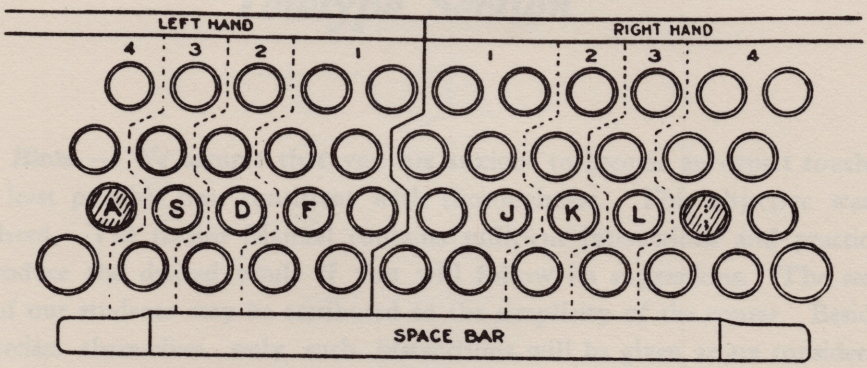


Fig. 2—Normal Position—Typewriter Keyboard.

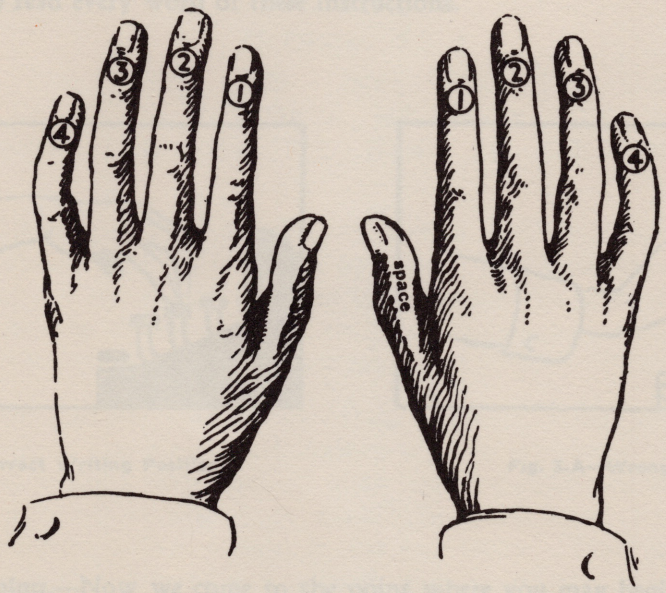


Fig. 2-A—Showing Finger Assignment. All spacing is done with the thumb of the right hand.

Referring to Fig. 2-A it will be seen that each finger has a definite key assignment very similar to that of the teletype. The student is urged to carefully note the actual difference between the two keyboards. The typewriter has four banks of keys, where the teletype has but three and,—this is important—there are *eleven* keys in each bank of the typewriter keyboard as compared with *ten* keys in each row of the teletype keyboard. The top row of keys on the typewriter may be ignored while practicing the preliminary series of exercises.

INSTRUCTIONS

KEYBOARD OPERATION

Teletype Section

Preliminary Hints. — We assume that you are anxious to become an expert touch operator in the least possible time consistent with thoroughness. This objective was carefully considered. The revised Manual contains sufficient instructions and practice material to produce the desired result if vou will follow its suggestions. The secret of the success of our students may be attributed to the simplicity of the course. Besides the practice exercises themselves, only such instructions will be given as are considered absolutely essential and, instead of appearing as a lengthy set of rules, they will appear at such points in our outline where they will be most effective. You are therefore urged to *very carefully* read every word of these instructions.

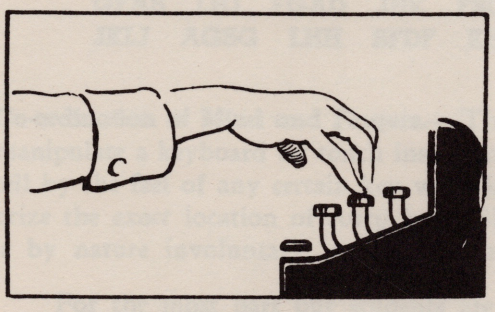


Fig. 3—Correct Writing Position.

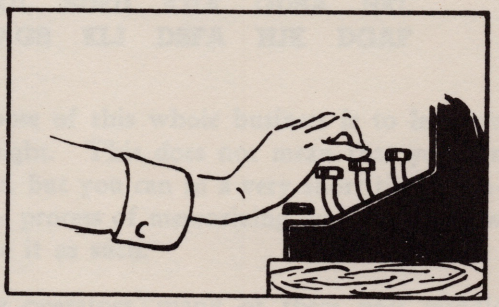


Fig. 3-A—Wrong Position.

A Proper Beginning.—Now we come to the point where you may begin to do something for yourself. Begin with Exercise No. 1. In this exercise, as is the case with every other exercise and lesson, the first thing to do is to place the fingers on the keyboard *in normal position.* Hold the wrists well up as indicated by Fig. 3. This may seem awkward at first, more so if the typewriter or teletype table is too high, or the operator's chair is too low. The top of the typewriter or teletype table should be 24 to 26 inches from the floor; the operator should then adjust his chair to such a height that will leave the fore-arms in a comfortable writing position—Fig. 3—when the operator sits erect with both feet flat on the floor.

Exercise No. 1 is composed of the letters of the middle row on the teletype or typewriter keyboard. That portion of the keyboard is reproduced in Fig. 4. It will be necessary for you to look at the keyboard the first few times you try to place your fingers in normal position; having done so, do not look at the keyboard when you begin writing Exercise No. 1. Look at the *diagram, think* the key location for the letter "G," strike that key, and then promptly return the finger to normal position. Follow the same procedure for each letter of the exercise. At the end of each line, operate the *carriage-return* key followed by the *line-feed* key. Both are operated with the fourth finger of the right hand. Remember, the *carriage-return* key *first*, then the *line-feed* key.

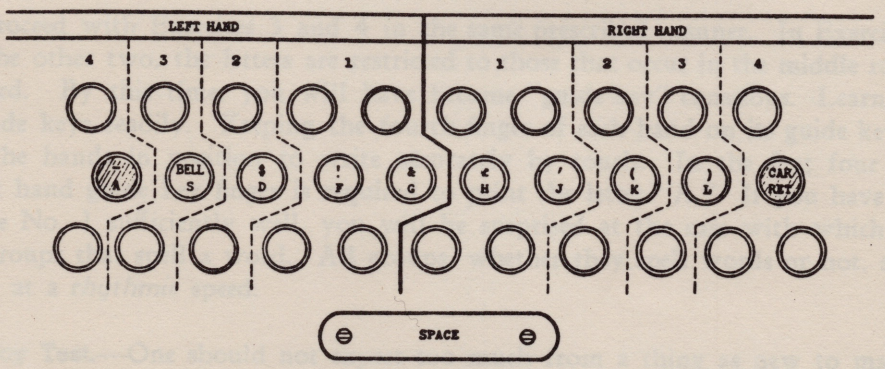


Fig. 4
Beginning with Exercise No. 1, the Line-Feed Key is operated with the fourth finger, when necessary to start a new line. Locate the Line-Feed Key and learn to find it by touch.

Exercise No. 1

GGG FFF AAA SSS DDD HHH JJJ LLL KKK
GFAS LHJ FGAD JHK FSGA HJL SDFD KJLK GDSA HKL
JKLJ AGSG LHH SFDF KHL DAGS KLJ DSFA HJK DGAF

Co-ordination of Mind and Fingers.—The purpose of this whole business is to learn to manipulate a keyboard by touch instead of by sight. This does not mean that you can tell by the feel of any certain key what key it is, but you can in a very short time memorize the *exact* location of *every* key. Since the process of memorizing we are to follow is by nature involuntary, we should recognize it as such.

For the most part our students are Morse operators, many of them past middle age. Almost without exception, touch writing is a new experience. This is true even of the veteran brass pounder who has had many years of experience with the typewriter. Clumsy fingers are slow at first to do the bidding of the mind. Exercise No. 1 brings into play, nerve telegraph lines seldom, if ever used before. There is something in this first exercise which if discovered and utilized, will make each succeeding exercise increasingly interesting and effective; it cannot be explained in words just here. It is something that *happens* to you and your *thinking.*

With all fingers in *normal* position, it becames a matter of: (1) looking at the exercise; (2) glancing at the keyboard chart, and; striking the desired key without looking at the keyboard. Consider keys F and G, H and J. Develop by experiment the "feel" of the "G" key location. Similarly, the "feel" of the "H" key location,—be sure to reach over *just far enough* with the left fore-finger, to strike "G," *but not too far.* In the same manner, train the index finger of the right hand *very carefully* with regard to striking the "H" key.

Exercises 2, 3 and 4.—Exercise No. 1 is a very interesting introduction to our very effective course,—effective if it really does to the student what we think it will. Right here you should turn back to Exercise No. 1 and review it after this fashion; practice writing each group of letters in the first line until that group can be written with ease and confidence, without looking at the keyboard, . . . striking each key with a confident stroke and then let that finger come to rest in its normal position. Then write the entire first line of the exercise. Do the same with each *group* in the second line and then write the *entire* second line; similarly, the third line of that exercise. To begin a new line strike the *carriage-return* key then the *line-feed* key. Do *not* deviate from that sequence.

Proceed with Exercises 3 and 4 in the same prescribed manner. In Exercise No. 3, as in the other two, the letters are restricted to those that occur in the middle row of the keyboard. By this time, you will have become "guide key" conscious. Learn to locate the guide keys readily. Keeping the fourth finger of each hand on its guide key is what keeps the hands in position to write accurately by touch. In the first four exercises, the left hand guide key finger is required to print the letter "A." If you have practiced Exercise No. 1 sufficiently well, you will be surprised at the ease with which you can print groups that spell a word. All groups, whether they spell words or not, should be written at a *rhythmic* speed.

Accuracy Test.—One should not expect too much from a thing as new to many of us as this is. At the same time, there is a reasonable standard for us to measure up to. Mistakes are manifestly unavoidable. When they occur they indicate a weakness that should be promptly overcome. Just as exercise strengthens the muscles so will self-imposed discipline correct objectionable habits.

Here is a suggested plan by which you can reasonably check your progress. You should use this measuring stick in connection with each exercise before passing on to another. It is simply this: having practiced an exercise until you are able to write every group in each line, destroy the tape and then proceed to write the entire exercise *three times,* without any break in the tape between them. One of the three exercises thus written should be absolutely correct before you take up the next succeeding one.

Exercise No. 2

HAG LGHS KGHD JGHF FJA JSLF KFJD DKA LDKS LAS HGJF KDLS A AS HALF AH FALL DL GAG ASK JAG ADD FLASK JAG ASK DASH JAG FLASK FAD ALL HAG SASS LAD

Exercise No. 3

AHG FAJ AKD SAL GLSH FLSJ SKDL DHGK FKDJ GJFH ASL DKF JGH FLASH SAD HAG ALAS LADS JAG HAS DAD FALL ADA GLAD ASH LASS HAD GAG DASH FLASK SAGS ASA FAG ASK DAD HAD FAD A JAG GLAD LASS ADD HALF HAS FLASK ALAS SAD

Exercise No. 4

SAD AHA JAG LADS DASH HAG SASS FALL AS GLAD A FLASH HAD ALL SAD LAD AH FALL DAD HAS ADD HALF ASK LASS HAG SASS GAG DL ASH FAD A JAG AHA DASH GLAD AS A FAD ALAS GAS SAD AS HAS DAD GAG LADS FLASH JAG DASH HALF SASS ASH FALL HAD LAD ASK AS DL ADA HAS AH FAG

Exercises 5 to 7, Inclusive.—It is expected that after completing the first four exercises, you will have four cardinal points fixed firmly in mind; the normal position for each finger; proper position for the hands; the guide keys, and, familiarity with the location of each key in the middle row. Beginning with Exercise No. 5, we assign to the index finger of each hand, two additional keys in the top row and two additional keys in the lower row. Thus, the principle of this course becomes one of exploration.

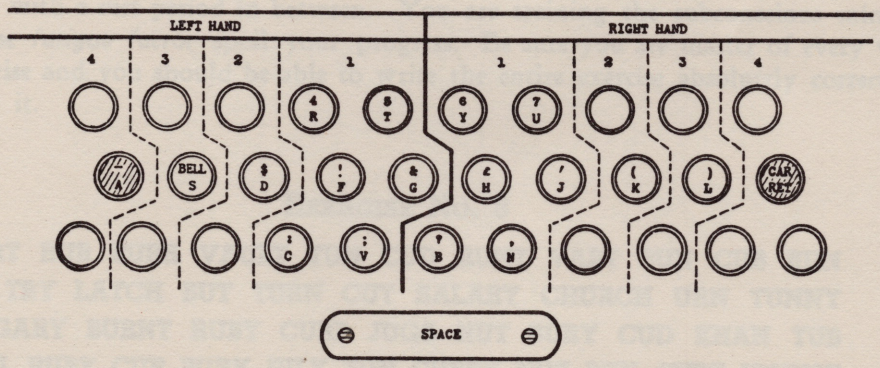


Fig. 5

Particular attention should be given to the correct location of the letters "T" and "V," with the index finger of the left hand; and the location of the letters "Y" and "B" with the index finger of the right hand. These operations confirm everything we have said about the value of "guide key" consciousness. The fourth fingers *must* be kept on their respective guide keys. This is a good place to warn you against the *very* bad habit of "riding" the guide keys. You should be careful at *all* times not to press down on either of the guide keys while another key is being operated. Riding the guide keys, especially on the teletype keyboard, is the chief cause of combinations that result in wrong letters being sent. More will be said about this a little further along.

Exercise No. 5

RRR TTT CCC VVV UUU YYY NNN BBB FGVC JHBN RFVT UJNY GTRC NHUB CTGF YJBU AFVRTA LHBYBL NJUH VGCV JUYH TFRG YUJN CFTR HYNU GRVF KJBHNK SGCRVS FCTG BYHJ FRCG HUNB TCVR UNJY CRFT BHBJ DGVTVD YNUY

Exercise No. 6

FHGJ HGJF VNCB NVBV RHTJ YVNG RUTY UCBF RYCU TRY CUT BY FULL TURN BUT CURB AJAR R BUY HTNF GYCJ URBT FJRB HFUG TUCN YGBR YJTH YCNR RUN JUNK URN B CHURCH KANAKA RUT BY TRY UNJUST CURB TUB BUBBY FAULTS RUN BUY CUT HUNG URN TUB

Exercise No. 7

VHFY JGUT GHVB NTJR FUGN YFBC GHVU JTYR CYVY BUT URN CURB YACHT RUN B CHURCH VACANT RUB TRY BGNC FBRJ HVUF TNGB JCHR FNTB UVJV GURN HCYT CUT DRUG TURN BUBBY TUB FRAUD BY CURB URN NAVY TURN RUB BUY STUFF CHURCH RUN TUB HARASS URN TUB

Review Exercise No. 8.— Having completed Exercise No. 7, take time to survey the progress you have made. Doubtlessly, you will be pleased with your ease at locating all the letters shown in Fig. 5. This exercise consists almost entirely of dictionary words. You will be tempted to "speed up." *Don't* do it. Accuracy is our *paramount* objective.

Something should be said about *how long* you should practice. Experience has taught us that our students make better progress if they give it all they have for one hour. Two hours a day should be the maximum under any circumstances, divided into two periods with a rest period in between. You are training the subconscious mind,— don't let the *fatigue factor* spoil your progress. Be sure you are master of every word in this exercise and you should be able to write the entire exercise absolutely correct before leaving it.

Exercise No. 8

CURT RUB BURR VAULT TUN CUD RUNT VAST BUN CUB RUN BY TRY LATCH BUT TURN CUT SALARY CHURCH URN TUNNY VAGARY BURNT RUBY CURB JUGS NUT BURY CUD KHAN TUB FULL RUBY CUR BURY JULY TUN CURRY NUT BUN CURT UNJUST TRY RUN BURN TRUNK TUN BURR RUB CHALK VULCAN RUT CURD CUT BUBBY TURN SGL TUNNY RUT LUCK RUNT BY CUB THAT RUBY CHURCH BUTT CURRY NUT CURB BURN TANK BURR RUB CURD FUNNY URN BURY RUB TUN

To Emphasize Rhythm.—Rhythm is defined as being a symmetrical and regularly recurrent grouping. Stated another way, it is movement marked by *regular* recurrence. Applied to our study, it means that we should write *smoothly* regardless of speed. In other words, rhythm is nothing more than regular 1-2-3-4 precision, whether we are writing familiar words, or cipher code.

Riding Guide Keys—Over-Striking.—We began a while ago with a simple exercise that required writing only on the middle row of keys. This enabled you to get the feel of a touch system at least in so far as *those* keys were concerned. The exercise did not require the changing of the hands from one row to another. Anything we may say about the *principle* involved in that first exercise may be applied to later ones. The first exercise inducted you at once into something that gave each finger of either hand a chance to function. The operation, being confined to one row of keys, involved a minimum amount of distraction. Except for the printing of the letters "G" and "H" there was no occasion to move the fingers from their home position. Is it not true that your first errors, if any, were in connection with "G" and "H"? This should indicate need for some concentrated practice until you can reach over and strike the "G" or "H" with the same ease and confidence that you write "F" or "J."

Doubtlessly, you were annoyed because you sometimes struck *between* "F" and "G" or between "H" and "J." If so, you should stay with it until you are master of the situation. Striking between any two keys, even though one of them is the *desired* key, will result in a combination that will print a wrong letter. Remember what we said about the guide keys holding the hands in proper position. Learn to touch the guide keys *very* lightly. Even the least pressure on a guide key while another key is being struck, will often result in a combination causing a wrong letter to be printed. Refer to Fig. 3 for *one* solution of the guide key riding habit.

Exercises 9 to 12, Inclusive.—You have already guessed it—with Exercise No. 9 we assign one additional letter to each No. 2 finger. The process consists simply of familiarizing yourself with the key location for "I" and "M"; "E" and "X." Proceed exactly as you have done with the preceding exercises.

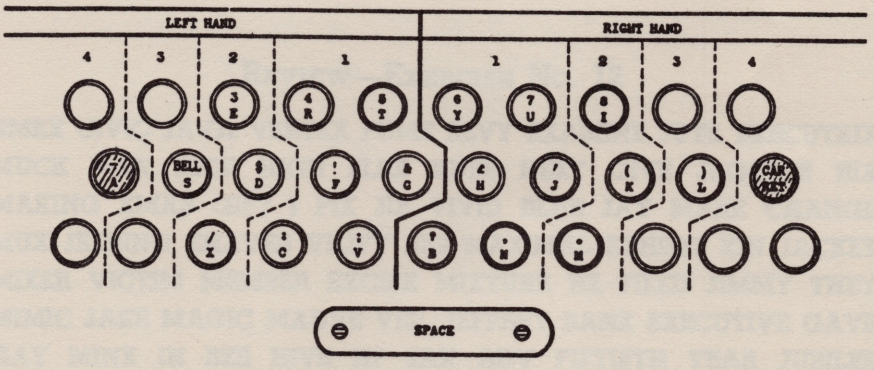


Fig. 6

Exercise No. 9

III MMM IMIM MIMI EEE XXX EXEX XEXE KIMI XDED MKIK DEXE IMKM EXDX XEXD MIMK EDEX IKIM DXDE KMKI

To review briefly: we began with all the keys of the middle row, including those that comprised the "normal position" for the fingers and, step by step, we have widened the circle to include more and more of the keys. If you are so familiar with any of the keys considered thus far, that you can write words containing those letters with reasonable ease, you should feel encouraged with your progress. If you experience any tendency to transpose letters, or, if you find yourself hesitating the least bit on *any* letter, this should be an indication that some review practice is necessary.

Exercise No. 10

KDMX IXKE MDID KXIE MEKD MXIX KEMD IDKX IEME DIXIE ME DEED LIKE JACK MIX DID KINDLY BELIEVE CHECK DKXM EMXI XKEK DIDM EIDK XMEN IXIK EKDI DMEI KID MEX DIED JUDGE VERY DIE EX DIME FIRST JIM THINK DIM FEET VIVID JERK SIX MID VIKING JIFFY VIE

Exercise No. 11

A BC DEF GHIJ KLMNR STUVXY KIRK JINX VIM GAVE JIG EXHUME HIM KINDRED VERB ADVICE VEX MIDDY FIX DEJECT VALISE KNIVES MEET BULK SUBJECT DEER IF EXILE JUNGLE KING MY VINE LEAVE YACHT FIRM CHIEF BIVALVE KEY VEXEDLY IMBED MEXICAN FIVE EXIT VENGE JIBE MAXIM EVERY XRAY VERIFY TIME FINE JAM IMMENSE KEG EXCITE VIXEN

In another place, we have cautioned against any premature attempt at speed. It has been our aim to stress *accuracy*. "How fast *may* I write?" you ask. The answer is, "no faster than you can write *accurately*." Speed will be found to vary with different students, even at completion of this course, but our earnest hope is that we may say of *each* or our students, that they turn out perfect work.

Review—Exercise No. 12

NMEX CIVIC JAVA VERTEX FUME BEVY EXAMINE JUTE EXECUTRIX MUCK MAY KICK HIGH FLEX KNEE NEXT GIVE JUGGLER SIX MAKING XMAS GIFT I FIX JIB VIVID BLUE JAY MAKE CHANGE MUX JEERING KNAVES VILIFY BIG MAXIMAL EXHIBIT KIN JACKET MIXER VICTIM MEMBER EXCISE MIXTURE HE FILED JIMMY THEY MIMIC JAKE MAGIC MAUVE VEIL JEFFREY BANK EXECUTIVE GAVE GAY MINX IN BEE HIVE HF JAX ADV FIFTIETH YEAR JUBILEE BEG EVE HUM HEIGH CHICK HEIGH IF JUICY FIG GUY BUY CUFF

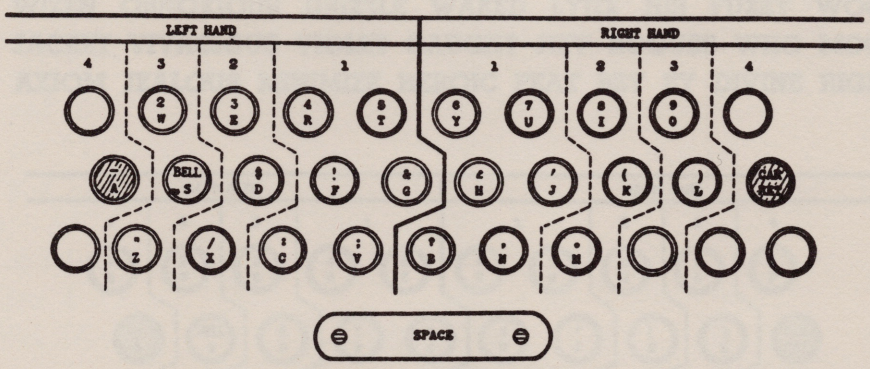


Fig. 7

Exercise No. 13

OOO	WWW	ZZZ	OOO	WZWZ	ZWZW
OLOL	WSWZ	LOLO	SWZW	OLLO	ZSSZ
LOOL	SZWS	OOLL	WZSW	LLOO	ZWZS

Exercise No. 14

OWZL LZOW ZOLZ WOZL SLSO LSLW WOVE OX MOB WOO VALVE OOZE KNEW COOK ZOO WHY ZOOZ WOWL OSSO LWLS WLOZ SLOS DOZ WICK OWE COMMIX OZ VOW JOYOUS MOO WIFE CRUX ZERO COCO WYO VIEW COZY JOCKEY WOKE COMMIT IVY COW

Exercise No. 15

ZYX WVUTS RONMLKJ IHGFEDCBA MOW ZONULE JOY GAZE FOXY SOW ZION MOVE COY JOKE OXIME DOZE HOW ROVE COMIC WOE COZE OK EVOKE BOY THE WEEK JUNE MOON KNOW ZOOLOGY BIG SIZE WOVE WEB MONEY BOX NMO LRKSJ TIUHVGW FEXDCYBAZ YOWL OZONIZE MEMO TOY IMMIX OWL JOVE ZEST OXIDE WOOF TAKE WIG OFF KY CITY ZOO ELUSIVE FOX MOVED MY ONYX JEWEL

Exercise No. 16

GOWN BOOK ZINC VIVIFY YEW OXEYE WIDOW ZAX OCLOCK JOEY MUSIC WORMY JIM WEAVE BAIZE OXFORD CHUM WON JUG OOZY OIL WE JUST JOKE WIZARD OF OZ VERY BUXOM WIDOW MUZZLE VICIOUS JOCKO GO MIX WAX SOME CRAZY WHIM TWIXT MOVING VEHICLES BUZZ BEE BUZZ OMIT ZINC OXIDE SWIEBACH XYLIC VICIKID MOXA WHOM JUMBO VOX MOTIVE WHIZZ BOW KYLIX WIZEN OBNOXIOUS DRIZZLE WAKED LYNX HIS FUZZY WOOL JACKET VIVACIOUS VIOLET CAUGHT JEFF ROGUES WHO MOCK AXIOM JEALOUS MINIMIZE HEROIC FEAT BEY BY DIVINE RIGHT

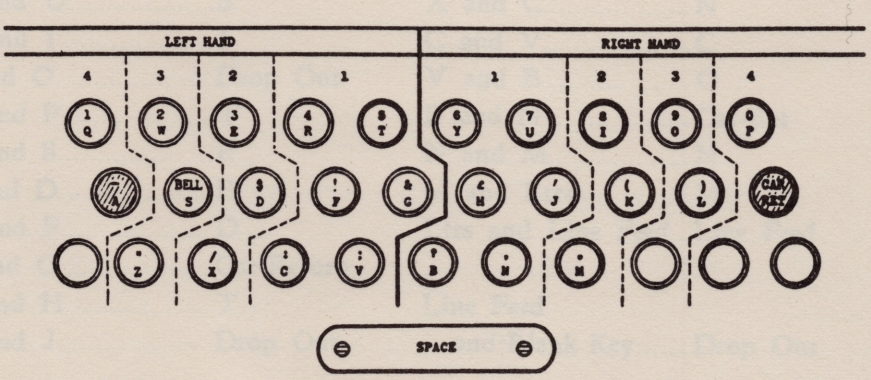


Fig. 8

Exercise No. 17

QQQ PPP QQQ PPP QPQ PQP QPQ PQP
QAA QPA QAP PAA PAQ PQA AQP APQ

Exercise No. 18

POP QUOTE ZIP SQUAW PROXY VAPID PUMP PEG
QUAFF BIPED QUOTA ZEPHYR QUALIFY JONQUIL
POX EQUIP QUEEN WHOOP QUAKE COPY CHEQUE
QUICK QUIZ WOMEN EXQUISITE POPPY PIVOT
JUMPED QUERY PICKWICK SIMPLEX BQ EQUINOX

Exercise No. 19

ABCDE FGHIJ KLMNO PQRST UVWXY ZZY XWVUT SRQPO NMLKJ IHGFE DCBA QUIVIVE COUPE EQUALIZE POWPOW QUIXOTIC POMP QUAKE PIXY QUARTZ WHIP QUEUE PUB QUID PUZZLE QUIP PUFF QUORUM PIQUE QUIET OPAQUE QUINCUNX SWOOP OPPOSE ELOQUENT CHAMPION POKE POMPOUS PYGMY QUICK PUPPY QUICK NMOLP KQJ RISHT GUF VEWDX CYBZA AZBYC XDW EVFUG THS IRJQK PLOMN PHLOX BANQUET JEOPARDIZE WHEW QUALM POD QUEST POMPOM QUOTH JULEP QUINZE UPON PICTURESQUE PIAZZA YOU PRIZE TOQUE JOIN LOQUACIOUS PEOPLE DO KEEP EQUIPAGE WE PICK QUINCES VIKING VANQUISH JOSEPH

Possible Combinations

Simultaneous Striking of	*Will Result In This*	*Simultaneous Striking of*	*Will Result In This*
Q and W	W	J and K	J
W and E	E	K and L	Line Feed
E and R	Drop Out	L and Car-Ret	Drop Out
R and T	Drop Out	Figs and Z	Z
T and Y	T	Z and X	Z
Y and U	S	X and C	N
U and I	I	C and V	C
I and O	Drop Out	V and B	O
O and P	T	B and N	Car-Ret
A and S	E	N and M	N
S and D	E	M and Ltrs	M
D and F	D	Ltrs and Line Feed	Line Feed
F and G	Car-Return		
G and H	T	Line Feed and Blank Key	Drop Out
H and J	Drop Out		

Review—Exercise No. 20

BISHOP CHANTS WEIRD DOXOLOGY HOW PACIFY QUAINT ZOUAVE HAPPY PAX QUIZZED JOVE MAZIE QUOTES GOOD BOOK FIZZ KEPT JAP QUIVERING VERY DEEP GLOOMY QUAG VOODOO EXHORTS WICKED ZULU EXPEDITE EACH X MSG QUIZZICAL BOY PIQUED JOE FOXY PYGMY QUICKLY HID JINX IN JUG UPON VAST PORCH WE WOO DIVINE WISDOM OF ZION QUOTH A PIOUS QUAKER BEE BUZZING BY VEXES ZOUAVE DOZING AWAY BY TRANQUIL POOL VIVACIOUS VIOLET PICKED EXQUISITE PHLOX FOR QUIXOTIC QUEEN OF MAY YOU KNOW JAKE PUZZLED PIQUANT MINX BY WOOING BUXOM WIDOW ELOQUENT AJAX PROFESSOR OF ZOOLOGY QUIZ MUM JUDICIOUS ZOUAVE BOY GO QUIP FIJI KNAVE JO WITH WAX OZMA OF OZ

Figures and Letters Shift.—Now we come to perhaps the most important point of the whole business. Though the manual dwells at some length upon the subject of Letters, Figures and Functions we can profitably give it some more space at this point. With the standard typewriter, using the facilities of both lower and upper case, it is possible to print 84 letters and characters. This includes all the numerals and punctuation signs. When it is desired to print an upper-case letter or character on the typewriter, the "shift" key is held down while the desired key is depressed. As soon as the shift key is released, the carriage—or the type-basket, as the case may be—returns to lower-case position.

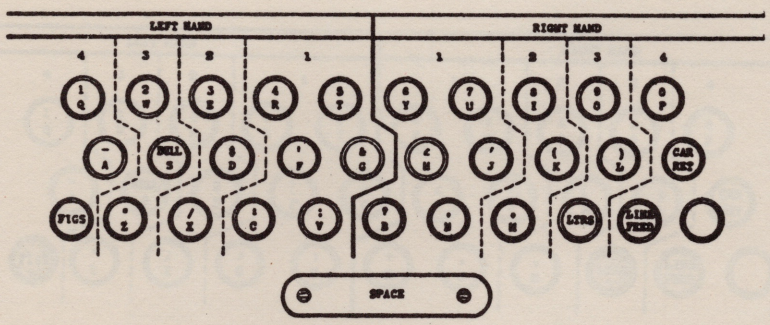


Fig. 9

The teletype keyboard Figure 9 has thirty-one keys and a space bar. Twenty-eight of these keys are for upper and lower case letters and characters, two of the keys are for independent functions and one key is a blank. When one of the function keys or the space bar is operated, the result is a transmitted impulse that causes a mechanical pre-arrangement of the receiving printer. For instance, the transmission of the space impulse results in a blank space between letters or groups of letters of the transmitted message. The operation of the "figures" key causes a figures impulse to be sent. Upon arrival of this impulse the receiving printer is caused to shift to upper-case printing; it remains in this position until an "unshift" or "letters" impulse is received. Thus it will be seen that the arrangement of the keyboard, Figure 9, permits the transmitting and printing of the twenty-six letters of the alphabet, ten numerals, eighteen punctuation signs and a bell signal. In case we have not already made it clear may we restate: The shift or figures impulse must *precede* the transmission of *all* upper-case letters or characters; the unshift or letters impulse *must precede* all lower-case printing; and, when shifted to either position the receiving printer *remains* in that position until the *opposite* shift is transmitted.

The foregoing exercises in this Section were intended to avoid the use of any uppercase printing. This, because we want to give that feature special handling. We will do that now.

Explanation of Exercise No. 21.—Referring to the Teletype Keyboard, the left parenthesis is seen to be upper-case of the letter "K,"—to print it the "figures" key is operated, then the "K" key. The right-hand parenthesis is upper-case of the letter "L,"—"figures" key followed by operation of the "L" key. Operation of the "figures" key causes the receiving printer at the distant office to shift to upper-case printing. It will remain in upper-case shift until the "letters" signal is received. To send the "letters" or "unshift" signal, the puncher operates the "Ltrs" key. Following the receipt of the "Ltrs" signal, the receiving printer will translate every *succeeding* impulse received as lower-case letters, *until* another "Figs" impulse is received.

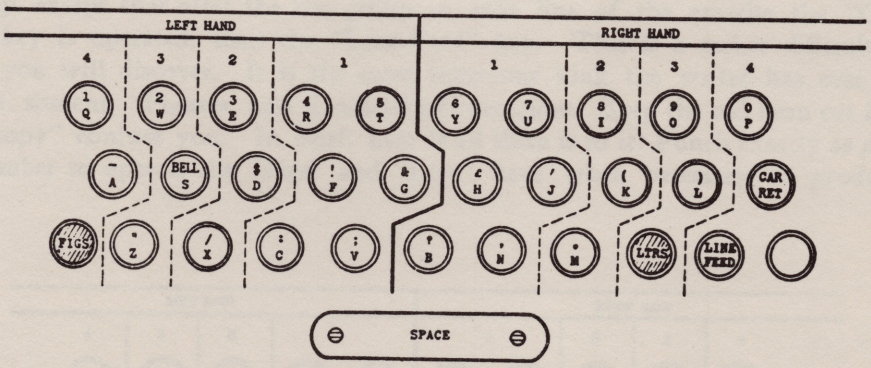


Fig. 10

Exercise No. 21

(FIGS) (FIGS) (FIGS) (LTRS) (LTRS) (FIGS) (LTRS) (FIGS) (LTRS) (LTRS) (FIGS) (LTRS) (FIGS) A(FIGS) (LTRS) (FIGS) (LTRS)O Q(FIGS) (LTRS) (FIGS) (LTRS)L (FIGS) (LTRS)AQ OL(FIGS) (LTRS) (FIGS) (LTRS)QA LO(FIGS) (LTRS)

Consider Exercise No. 21: It is desired to print everything just as illustrated by the exercise. Please give very close attention,—proceed after this fashion: Operate the "Figs" key and then "K" key,—this will shift the distant printer to upper-case and will print the left-hand parenthesis. Operate the "Ltrs" key and then keys F-I-G-S, respectively. This causes the distant printer to shift to lower-case printing and *prints the letters,* "FIGS." Now operate the "Figs" key and then the "L" key. This shifts the receiving printer to upper-case and prints the right-hand parenthesis. Operate the space-bar and go through the same procedure for the second group; operate the space-bar and print the third group.

Consider the fourth group, in the first line of the Exercise. Operate the space-bar,—"Figs" Key—"K" key—"Ltrs" Key—strike the keys L-T-R-S—then "Figs" Key—the "L" Key—space bar. This operation shifts the printer to upper-case, prints the left-hand parenthesis, shifts to lower-case and *prints* LTRS (as per copy), then, shifts to upper-case and prints the right-hand parenthesis.

Exercise No. 21

(FIGS) (FIGS) (FIGS) (LTRS) (LTRS) (FIGS) (LTRS) (FIGS) (LTRS)
(LTRS) (FIGS) (LTRS) (FIGS) A(FIGS) (LTRS) (FIGS) (LTRS)O
Q(FIGS) (LTRS) (FIGS) (LTRS)L (FIGS) (LTRS)AQ
OL(FIGS) (LTRS) (FIGS) (LTRS)QA LO(FIGS) (LTRS)

Follow the same procedure for successive groups, operating the space-bar between each group, except that after the last group in each line of the exercise the "Carriage-Return" key is operated, then the "Line-Feed" key. This is a rather difficult assignment, as you will discover. It is the most ingenious kink the writer has ever seen to make the student "Figures and Letters-key" conscious. Keep the old bean cut in, don't let the "copy" confuse you. In brief, here is all there is to it: Punch exactly as *per copy*, and remember to operate the "Figs" and "Ltrs" keys when necessary to *produce* that copy.

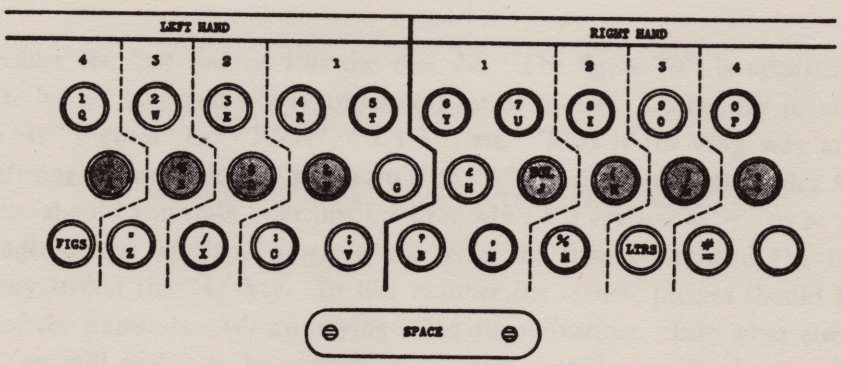


Fig. 11—Western Union Simplex Keyboard.

Direct Keyboard Operated Machines.—Page printers may be divided into two general groups, direct keyboard and tape transmission. A direct keyboard page printer is one that has a keyboard attached directly to the printer. When one of the keys is depressed, the machine automatically sets up the corresponding combination and transmits that letter or character.

In the case of the tape transmission type, the keyboard is a part of a separate unit known as a perforator. Operation of the keys of a perforator keyboard sets up the desired combinations and causes corresponding holes to be punched in transmission tape. Later, the tape may be run through a transmitter (another separate unit). The transmitter sends letters or characters corresponding to the punching in the tape. Both keyboards are identical and their operation is very similar.

The keyboard shown in Fig. 11 is that of the Western Union Simplex Type of printer, a direct keyboard machine. The received message is printed on gummed tape and it is necessary for the receiving operator to "paste up" the message after it is received. Note the absence of "Carriage Return" and "Line Feed" functions.

UPPER-CASE PRINTING

The printing of numerals and punctuations can be made as simple, as it is important. Exercise No. 21 got us well acquainted with the use of the shift and unshift keys. Now, we shall give some thought to just a few additional exercises that will enable us to fix the location of upper-case characters in mind, the easy way. Instead of the, 1-2-3-4-5-6-7-8-9-0 method of exploration (Exercise M of the Manual) this exercise and the following ones will be found to be more effective. This, because they provide interesting association between numerals and related letters.

Exercise No. 22

444 555 4545 5454 666 777 6767 7676
F4F5 J7J6 G45V H76U 5RV4 7YN6 5T4C 7B6H 5445 WOQ46 57-ZQX65
74-QXP45 67-JWQ75 64-KZW76 54-U7Y6 G5R4 N76B T45C 6JH6 4FV5
7U6Y 4G4R 7667 XQZ675 47-WVQ574 76-ZPM467 56-QWF764 55GZQ465
74-T5C4 B6Y7 R54T U67N 4V5F 7JB7 C55G 7H6N 4554 6776 OZ
QUIMBY IOWA 6 545P WQ ZUMPANGO MEX 5 746P XJ ORPHA
WYO 7 446P QZ PUXICO MO 4 657A

Consider the first line of Exercise No. 22. The figure "4" is upper-case of "R". Right here let me give you a very important bit of advice: Do not try to memorize the numerals as: "Figures" key "RRR", "TTT", etc. That is the long way and is somewhat confusing. Instead, just as you learn that "R" is printed with the index finger of the left hand so should you train your instinct that when the eye sees a "4" to be printed, the fourth finger of the left hand *instinctively* seeks the figures key and the index finger instinctively strikes the "4" key. In like manner the mental process should be the same for each of the numerals. We are saying a lot about instinct. But what else could you call it? You will find it to be your most valuable asset if properly developed.

Consider the second line of Exercise No. 22. You've got something here. Letters key F figures key 4 letters key F figures key 5—space—letters key J figures key 7 letters key J figures key 6. Do you see what I mean? From this point detailed explanation will become less and less necessary because we have just about covered the ground.

Exercise No. 23

4H5J 6F7R U54Y T67G 5BN4 7VC6 7465 6457 6T6G U45Y V76C B54N
7FR7 5HJ4 5647 4675 QWZ556 74-XZK647 65-JQV767 45-PW0475
46-ZFQ657 54-Y5B4 F7R6 H4J5 T7G6 N5RU 6V7C 5647 7465 GQW465
66-VXZ547 55-WPQ754 76-XKZ674 47-QFW467 65-WO DIXIE GA 654P
XQ POMP KY 6 747P F66R H54J 7TG7 4BY4 V6C7 5N5U 6457 4675
JZ WETIPQUIN MD 7 756P QV SQUILA BC 5 657P VQ PIQUA OHIO
6 447P ZO WAUKAZOO MICH 4 656P KW POPEJOY IOWA 5 546A
QX ZIGZAG QUE 7 645P

Exercise No. 24

333 3434 3535 4343 5353 888 8686 8787 6868 7878 3EX3 8K8M D3E3 K818 3D3X 81M8 WQJ85 38-QXK43 83-XFQ68 73-ZMX33 88-PWZ87 36-VZW348 53-FWQ838 68-JXZ733 48-WKQ858 37-ZBW383 34-OQ WILCOX MO 3 538P XW BOAZ WIS 8 836P 3883 8EX8 31K3 E8D8 3K3M 8D8X M313 8338 QUW783 86-KOX378 35-PZQ438 63-WVZ534 78-GQJ843 58-XQ DUBUQUE IOWA 6 833P WZ QUIMBY LA 7 437P OW JOPPA MD 3 358P KQ OZARK OHIO 8 648P QV WOODS KY 4 838P VX MUZQUIZ COAH MEX 7 538P JZ PAWPAW MICH 8 753P QW OXBOW ME 6 338P ZX KIPAWA QUE 5 648P VZ OKOBOJI IOWA 3 847P

Exercise No. 25

Strike the LETTER O when O appears in this exercise.

222 2323 2424 2525 3232 4242 5252 999 9898 9797 9696 8989 7979 6969 S22Z L99 2S2W 909 Z2W2 O99L FZW69 29 XOQ98 32 ZQK52 79 VXJ28 92 QFZ42 99 UQX392 82 WVZ829 26 KJQ239 72 ZOW932 59 MZX893 24 XZ BOWIE ARIZ 8 922P WQ KISPIOX BC 9 259P 2992 9WS9 20L2 9ZW9 2L2 9SZ9 O22 9229 WZ0929 62 VQZ292 27 GWX398 92 ZKQ299 23 JQF896 57 XW MOQUAH WIS 3 829P OZ KOKOMO COLO 2 923P UQ ZOPP TEX 9 238P ZW ISHAWOOA WYO 8 429R JX DEPEW OKLA 5 927P QV MAXIMO OHIO 7 239A QK SPUZZUM BC 6 532P WG OZUMBA MEX 9 928P ZU PEMAQUID ME 8 939A JQ BOAZ KY 2 649P

Exercise No. 26

Strike the cipher to print 0 as a numeral.

111 1212 1313 1414 7171 8172 1987 5162 1672 1910 1QA- -OPQ RQ10 -QA1 P010 22-0 3P-0 1--1 -1-1 0101 1-2 OZ BOX 90 WEIGH 1 BU WOVE 201 DOZ MIX 30 EXTRA 81-108 VX QUINZEDAM QUE 20 901P ZJ BOZ TEX 13 810P WE QUIZ 10, VIZ SIZE 89, OXIDIZE 1 QT., 42-300, EQUIP 1 ZOO, 1 BIG JUG, KW GEX KY 26 120P JZ BIGVEIN VIR 19 308P 107, 293- 846 520 394— 718 56 0123987456 21-70, VIEW 1 JIB, BUY OX 43, 380 KEGS WINE, 91-109 JUST 1 ZERO, XJ BIVALVE NJ 18 901A QX WVIR 10 800P

Rhythm—Accuracy—Speed.—These are the three objectives toward which we have been striving. Somewhere along the way, we realized that we had become familiar with the location of every letter on the keyboard. So much so, that the act of seeing a letter was instantly followed by a conscious impulse to strike that letter. I say instantly, with some reservations. Until the point was reached when there was no mental lag or hesitation, the impulse was not sufficiently developed.

On the other hand, it is necessary to apply the brakes with letters with which we are very familiar and spur ourselves ahead so that we have some snap with the more unfamiliar ones. Stated another way, one letter should follow another very precisely regardless of the speed. Practice begets confidence, self control produces rhythm,—*and accuracy;* speed must be left to take care of itself.

TAPE READING

Scope.—Besides striving to become an expert keyboard operator the student who expects to operate a perforator should familiarize himself with the five-unit automatic code, as soon as possible. This knowledge enables the operator to read transmitting tape, by sight; it enables him to check his own punching, when interruptions occur and to determine how much to back-space for a "rub-out."

The scope of this text is limited to the actual requirements of an operator and covers keyboard operating and tape reading. For every hour the student devotes to keyboard practice he should allow not less than ten minutes for code review and systematic tape-reading practice.

The Five-Unit Code.—There are two methods for sending a message on the teletype. One is the direct keyboard transmission and the other is by means of a transmission tape. The former needs no explanation, the operator simply operates the keyboard and each character is transmitted the instant the corresponding key is depressed. The latter method requires some elaboration because it requires the preparation of the tape which the operator does when he manipulates the perforator keyboard. In each case the actual transmission of the message is automatic and makes use of the five-unit code.

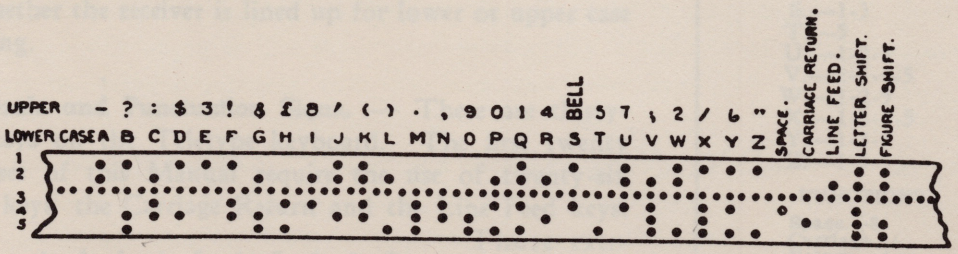


Fig. 12—Tape Perforations and Corresponding Characters.

Fig. 12 shows a section of transmitting tape in which all the letters and functions have been perforated. There are thirty-one of them, the maximum number possible to transmit. Instead of thinking of this code as consisting of so many dots, like the morse characters, we must consider them as "combinations." Each combination is read *across* the tape, as indicated by the numerals 1-2-3-4-5. For instance, A is read "1-2"; B, as "1-4-5"; C, "2-3-4", etc. Fig. 15 gives the code in convenient tabular form and it should be memorized for instant use.

Letters and Figures.—The printer uses an all-capital type-face; all lower-case *characters* are letters of the alphabet. The upper-case *characters are the ten numerals and* 15 *punctuation* signs. *Characters* are italicized because we shall refer to characters as something *actually printed,* in response to a combination, as compared with some *mechanical function* performed by the printer, in response to a combination, also perforated in the tape, by the operator.

Functions.—Before one can intelligently read a perforated tape he must first learn all there is to know about punching a tape. We have said that thirty-one is the maximum number of combinations, possible to transmit, using the five-unit code. Yet we see, by Fig. 12 that there are twenty-six lower-case *characters* and twenty-five upper-case *characters*, or a total of *fifty-one*. As you have already anticipated, those two shift combinations have something to do with it. Transmission of the "Letters-Shift" combination causes the receiving machine to line up to print lower-case and the transmission of the "Figure-Shift" combination changes the position of the receiver to upper-case printing. Depressing the "Letters-Shift" or "Figure-Shift" keys of the keyboard causes a corresponding code combination to be set up and transmitted, as seen in Fig. 12; these shifts are mechanical operations and are known as *functions*.

The LTRS and FIGS shifts are of *basic* importance because their use makes it possible to print *all* the characters and signs, instead of limiting transmission to thirty-one characters and signs, as would be the case otherwise. "Space" is a function, which, when its combination is sent causes the receiving printer to space between words and groups; "Carriage Return" is the function that causes the carriage of the page printer to return to position to print another line, and; "Line Feed" is the function that mechanically turns the roller, or platen, up one line, the same as we do manually, with the typewriter. Each of these five functions are independent, in their action; that is, their combination will cause the desired operation regardless of whether the receiver is lined up for lower or upper case printing.

A.—1-2-
B.—1-4-5
C.—2-3-4
D.—1-4
E.—1
F.—1-3-4
G.—2-4-5
H.—3-5
I.—2-3
J.—1-2-4
K.—1-2-3-4
L.—2-5
M.—3-4-5
N.—3-4
O.—4-5
P.—2-3-5
Q.—1-2-3-5
R.—2-4
S.—1-3
T.—5
U.—1-2-3
V.—2-3-4-5
W.—1-2-5
X.—1-3-4-5
Y.—1-3-5
Z.—1-5

FUNCTIONS

Space.—3
Carriage Return.—4
Line Feed.—2
Letter Shift.—1-2-3-4-5
Figure Shift.—1-2-4-5

Fig. 15—Five-Unit Automatic Code.

Numerals and Punctuation Signs. — There are thirty-one keys on the Teletype keyboard. The first twenty exercises of this Manual require the use of twenty-six letter keys, the Carriage Return and the Line Feed keys.

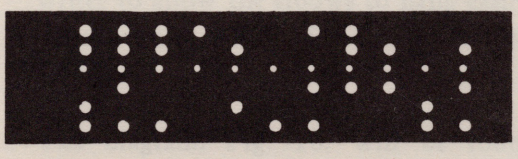


Fig. 13—The Numerals.

Those exercises were purposely arranged to avoid the use of the "Figures" and "Letters" keys. Though each one of the lettered keys were intended to serve a dual function, that fact did not distract from the business of locating each key, by the touch method.

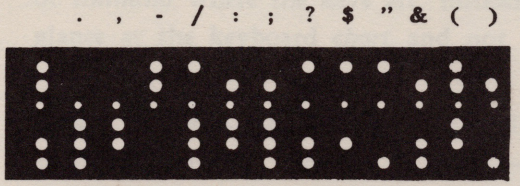


Fig. 14—Principal Punctuations.

It is a very simple matter to include the "Figures" key and thus utilize all the punctuation signs and numerals that are found in the upper case on the same keyboard. This was effectively demonstrated by exercises 21 to 26 inclusive. The five-unit code can be memorized with the aid of Fig. 12. The code is also given, in tabular form, Fig. 15. A good plan is to memorize four or five letters a day; review those already learned before taking up additional ones.

INSTRUCTIONS

KEYBOARD OPERATION

Typewriter and Teletype Section

Foreword.—The instructions and exercises given in the preceding section of this Manual are calculated to develop proficiency in touch writing. Those exercises were arranged particularly for Teletype students. In the preparation of the Teletype Section, the big problem was to present an effective system using the fewest possible words. This is consistent with our claim that the student's skill is the result of something that "just happens to him," rather than the result of reading many volumes of instructions. Though the Teletype Section is perhaps the most effective treatise yet to be published, its usefulness need not be limited to the Teletype. Typewriter students may use the Teletype Section to good advantage. Many students are interested in becoming Teletype operators, who do not at the present time, have access to a Teletype keyboard. If you are such a one, we recommend that you begin at once to train yourself as a touch writer, using the *typewriter* keyboard. Many of the principles discussed in connection with the Teletype keyboard will apply to the typewriter; particularly is this true of the *exploration* method of becoming acquainted with the location of the keys.

Preliminary Instructions.—The student's position should be easy and erect, both feet flat on the floor under the machine. Refer to Fig. 3 to refresh your memory on the correct writing position for the wrists. Your chair should be just far enough from the typewriter to allow the elbows to hang easily at the sides when the small fingers are resting on the guide keys. Fig. 16 shows the guide keys to be shaded, for your further guidance.

The diagram, Fig. 16, will be found useful in connection with the first four preliminary typewriter exercises; the large Typewriter Keyboard Chart (page 32 of this Manual) should be cut out and placed where it can be referred to when necessary, in connection with all the other exercises and lessons of this Section. Cultivate the habit of *thinking* where the keys are, instead of looking for them. If necessary to *look*, glance at the keyboard *chart* and not the keys on the machine. Then locate by *touch*.

Ready to Begin.—Beginning with preliminary exercise A, your first efforts must be for accuracy. Give no thought to speed,—no matter how slowly you find it necessary to write without error. Every exercise should be written absolutely without errors before passing on to another exercise. If this is impossible of accomplishment, it is a sure sign either that you are not concentrating sufficiently or that you are trying to write too fast. Cultivate neatness as well as accuracy, it will pay in the end.

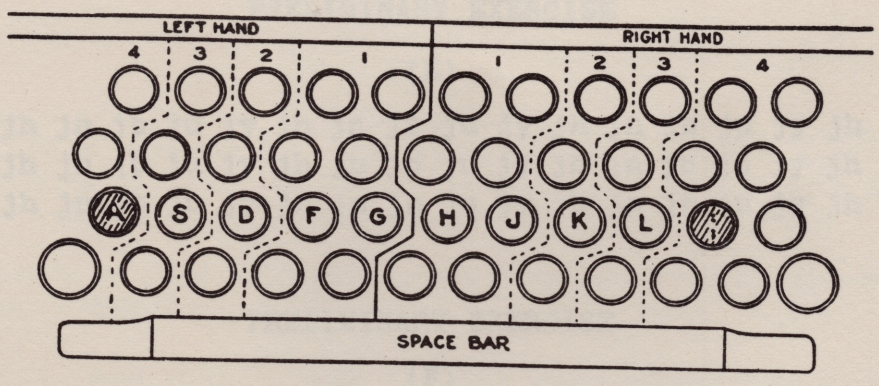


Fig. 16—Preliminary Exercises A to D.

PRELIMINARY EXERCISE

(A)

Keep your fingers resting lightly over the middle row of keys. Do not let your wrists "hang" from the keyboard. Touch the keys firmly, but do not punch them. WRITE SLOWLY. WRITE ACCURATELY

asdfg hjkl; asdfg hjkl; asdfg hjkl; asdfg hjkl; asdfg hjkl;
asdfg hjkl; asdfg hjkl; asdfg hjkl; asdfg hjkl; asdfg hjkl;
asdfg hjkl; asdfg hjkl; asdfg hjkl; asdfg hjkl; asdfg hjkl;

PRELIMINARY EXERCISE

(B)

asdfg hjkl; ;lkjh gfdsa asdfg hjkl; ;lkjh gfdsa asdfg hjkl;
asdfg hjkl; ;lkjh gfdsa asdfg hjkl; ;lkjh gfdsa asdfg hjkl;
asdfg hjkl; ;lkjh gfdsa asdfg hjkl; ;lkjh gfdsa asdfg hjkl;

PRELIMINARY EXERCISE

(C)

adsfg hkjl; adsfg hkjl; adsfg hkjl; adsfg hkjl; adsfg hkjl;
adsfg hkjl; adsfg hkjl; adsfg hkjl; adsfg hkjl; adsfg hkjl;
adsfg hkjl; adsfg hkjl; adsfg hkjl; adsfg hkjl; adsfg hkjl;

PRELIMINARY EXERCISE

(D)

sfdga khjl; sfdga khjl; sfdga khjl; sfdga khjl; sfdga khjl;
sfdga khjl; sfdga khjl; sfdga khjl; sfdga khjl; sfdga khjl;
sfdga khjl; sfdga khjl; sfdga khjl; sfdga khjl; sfdga khjl;

PRELIMINARY EXERCISE

(E)

ju jy jh jn jb ju jy jh jn jb ju jy jh jn jb ju jy jh jn jb
ju jy jh jn jb ju jy jh jn jb ju jy jh jn jb ju jy jh jn jb
ju jy jh jn jb ju jy jh jn jb ju jy jh jn jb ju jy jh jn jb

PRELIMINARY EXERCISE

(F)

fr ft fg fv fc fr ft fg fv fc fr ft fg fv fc fr ft fg fv fc
fr ft fg fv fc fr ft fg fv fc fr ft fg fv fc fr ft fg fv fc
fr ft fg fv fc fr ft fg fv fc fr ft fg fv fc fr ft fg fv fc

PRELIMINARY EXERCISE

(G)

ki km ki km ki km ki km ki km ki km ki km ki km ki km ki km
ki km ki km ki km ki km ki km ki km ki km ki km ki km ki km
ki km ki km ki km ki km ki km ki km ki km ki km ki km ki km

PRELIMINARY EXERCISE

(H)

de dx de dx de dx de dx de dx de dx de dx de dx de dx de dx
de dx de dx de dx de dx de dx de dx de dx de dx de dx de dx
de dx de dx de dx de dx de dx de dx de dx de dx de dx de dx

PRELIMINARY EXERCISE

(I)

lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l,
lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l,
lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l, lo l,

PRELIMINARY EXERCISE

(J)

sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz
sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz
sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz sw sz

PRELIMINARY EXERCISE

(K)

In this exercise (and in the following one), it is not intended that the letters S-H-I-F-T should be written out. Here is what IS intended: "Shift" refers to the key to be operated by the student. If practicing on the typewriter the Shift Key at the left of the keyboard will be depressed with the fourth finger of the left hand.

If practicing on the TELETYPE Keyboard the designation "Shift" may be ignored. It won't mean a thing to you.

aqa (Shift) aqa (Shift) aqa (Shift) aqa (Shift) aqa (Shift)
aqa (Shift) aqa (Shift) aqa (Shift) aqa (Shift) aqa (Shift)
aqa (Shift) aqa (Shift) aqa (Shift) aqa (Shift) aqa (Shift)

PRELIMINARY EXERCISE

(L)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ; . / (Shift)
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ; . / (Shift)
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ; . / (Shift)

PRELIMINARY EXERCISE

(M)

1 2 3 4 5 6 7 8 9 0 — — 0 9 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 9 0 —
1 2 3 4 5 6 7 8 9 0 — — 0 9 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 9 0 —
1 2 3 4 5 6 7 8 9 0 — — 0 9 8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8 9 0 —

SENTENCE AND FIGURE COMPOSITION

A minimum of four hours should be devoted to the foregoing Preliminary Exercises. One hour a day for a week is not too much time to devote to them. Your purpose has been to EXERCISE the fingers and to TRAIN them to find their positions ACCURATELY. Speed is ABSOLUTELY no object up to this point.

Now will you proceed with Lesson 1 writing only at such speed as you are able to write ACCURATELY. Do NOT look at your fingers on the Keyboard. Refer to the Keyboard chart, when necessary to refresh the memory.

LESSON 1

1. THE QUICK BROWN FOX JUMPS RIGHT OVER THE LAZY DOG.
2. PACK MY BOX WITH FIVE DOZEN LIQUOR JUGS.
3. WILLIAM JEX QUICKLY CAPTURED THE FIVE DOZEN GOOD REPUBLICANS.
4. THEY PROVOKED A QUARREL BY ZEALOUSLY MIXING FIVE LARGE WHITE AND FIVE JET BLACK CATS.

LESSON 2

abeam	accompany	all	antagonist
abraham	acknowledgment	alliance	applaud
absolute	acquaintance	american	approximate
abstraction	agreement	animadvert	april

1234567890 0987654321 1234567890 0987654321

It is better to suffer an injury than to commit one.

LESSON 3

babylonian	ballot	basis	beleaguer
baccalaureate	banner	battlement	beneath
backward	bargain	beastliness	benjamin
bagging	barque	beautiful	bewilder

135 768 972 700 4636 3524 3768 9760 2350 7000 4000 2638 3758

The person who seldom makes an error requires less supervision than one who makes many.

LESSON 4

campaign	carpenter	celestial	circumnavigate
cabinet	capitalization	catalogue	chamber
calibration	carnivorous	cavalry	cinematograph
cadaverousness	career	categorically	chargeability

45 23 67 96 25 60 40 50 93 97863424 90000 20000 99

Accuracy is not a gift. No one was ever born with it. It is an acquisition.

LESSON 5

dactyliography	decline	dethronement	disapproval
date	defalcations	devonport	discharge
december	demonstration	dipsomania	discount
decentralize	depreciate	disadvantageous	dissatisfaction

415 245 637 848 976 070 203 333 505 707 283 567

Laugh and the world laughs with you; weep and you weep alone. This sad old earth must borrow her mirth, she has sorrows enough of her own.

LESSON 6

earache	eight	embody	endosmometer
earnest	elasmobranchiate	encounter	engine
ecclesiastical	electioneering	encourage	engagement
education	elizabethan	encumber	enterprise

2700 3500 7600 6900 4300 5400 2828 4646 9736 0260 3344

The way to wealth, says Franklin, is as plain as the way to market. It depends chiefly on two words -- industry and frugality. It is not what a man earns but what he saves that makes him rich.

By this time you begin to "feel" the key positions. Do not try for speed until you have perfect confidence in this "feel." If you think you have made an error, glance at the Keyboard CHART, not at your hands on the keyboard. Better a slow ACCURATE operator than a fast sloppy one.

LESSON 7

fabric	faultiness	fifteen	forethought
face	febrifuge	fleece	foundation
fallacious	fermentation	fluidity	fraudulent
farm	field	flutter	frill

1,2,3,4,5,6,7,8,9,0 -- $, ( ) " / : ; ? , . 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, $, ( ) " / : ; ? ,

Do not hastily abandon a task begun with a worthy aim. As Lincoln observes, we shall sooner have the fowl by hatching the egg than by smashing it.

LESSON 8

gable	gangway	general	glean
gaff	garden	genius	glyptograph
galaxy	gasometer	gentlemen	gnat
gallop	gate	ghostliness	goat

$342.00 $912.63 $11,132.79; $421.73, $678.42, $149.12 $187.11, $915.73

Who steals my purse steals trash; but he that filches from me my good name robs me of that which not enriches him, and makes me poor indeed.

LESSON 9

haberdasher	hallelujah	hazardous	high
habit	handiwork	hedge	history
haematoxylin	harrow	herald	hole
hair	hate	heterodoxy	homeopathy

$342.81 $9,164.00 $.06 $4.36 $937.16 $1,312.00 $1,693.70 342 1/2 967 318 Brown & Smith Reed & Jones Co.

How poor are they that have not patience. What wound did ever heal but by degrees?

LESSON 10

ice	illuminate	inadmissible	indelible
ichthyography	imagination	inauguration	indeterminate
idea	imparidigitate	incomprehensible	invasion
illimitable	impose	inconspicuous	irrefragible

"Oceanic" "Olympic" "Baltic" Lloyd Phillips Sons & Co 314 4th Ave

'Tis with our judgments as our watches; none go just alike, yet each believes his own.

LESSON 11

jacinth	japanese	jesuitical	judgment
jack	jasper	jewish	judicature
jam	jealous	jocularity	juggernaut
jane	jelly	johannesburg	junior

Brown & Edwards: George Randolf & Co; John Jones & Co; Brown Edwards & Co Cor 12th & Douglas Sts

At every trifle scorn to take offence; that always shows great pride or little sense.

LESSON 12

kaffir	kangaroo	key	kilogram
kalmuch	keel	khaki	kilt
kaleidoscopic	kentish	khan	kindliness
kanaka	kettle	khedive	kindergarten

9/1/13, 4/30/17; 18,973 1/2, 1/3, 1/9, 2/3, 163 1/4. 9-1-13: 9-6-12, 4-7-12. Dated June 22 1916, Oct 19 1914 and Aug 16 1917.

Be not the first by whom the new is tried; nor yet the last to lay the old aside.

LESSON 13

label	lachrimose	lamination	last
labrador	lack	landlord	latch
labyrinthian	ladylike	lantern	late
lace	lake	lascar	laterally

John's hat. 321 1/2 A-1 Goods. Your letter, 3-9-13 "Order 3 cases each, dry goods, vegetables & groceries." Three hundred and two dollars ($302.00) cost:--3, 2s and 6d.

Fear not the anger of the wise to raise. Those best can bear reproof who merit praise.

LESSON 14

macaroni	major	manifesto	marmalade
machiavellian	maladministrate	manoeuvre	masterful
machine	management	mantilla	matchless
magazine	mandate	manuscript	mawkish

May 23rd 1917. Where? Indicate date as follows:--(5/23/17) Ship's cargo. Boy's clothes. $50.39 is 16 2/3 per cent of the amount.

Use no hurtful deceit; think innocently and justly, and when you speak, speak accordingly.

LESSON 15

nail	nihilist	nocturnal	nondescript
napoleon	nimble	noise	nonentity
navigable	nitrite	nomenclature	northward
negative	nobody	nomination	norway

Where? Which? Why? How? George's cousin. Fred's coat. Sarah's dress. "John Doe," "Richard Roe." 3 min., 10 sec., (3'-10").

The gem cannot be polished without friction, nor the man perfected without trials.

LESSON 16

oak	ocean	oligarchy	opinionative
obedience	odontological	olympian	orangemen
objective	offense	omnibus	ordeal
obnoxious	oil	omnipresence	organogenesis

31,963 -- 14S-6D; 12,6S & 2D. 5S-4D; 137-12S-8D: 3000, 39:49.

A little learning is a dangerous thing; drink deep, or touch not the Pierian spring. There, shallow draughts intoxicate the brain, and drinking largely sober us again.

LESSON 17

pachydermatous	parable	parenthesis	personality
paddle	paradox	parliament	pessimism
palingenesis	paraphernalia	penmanship	petroleum
palmistry	parasol	people	phonetic

(White, red & blue), (Red, white & blue) or (blue & purple) 20 Avenue Blocks (inc. cross streets) make 1 mile.

A wise man adapts himself to circumstances, as water shapes itself to the vessel that contains it.

LESSON 18

quack	qualify	quartziferous	quicksilver
quadrangle	quantity	quash	quiet
quadrisyllabic	quarrel	quaver	quinine
quadroon	quarter	queen	quinquennial

3/8 - 1/2 126, 91; 6-1-13: 1/9 1/8/13, 1-8-13; 672 1/2 No 17 1/2 Pacific St.

Earth gets its price for what earth gives us.

LESSON 19

rabbit	rancor	reasonableness	regarding
race	random	receipt	register
radial	ratiocinate	reckon	relationship
railway	realization	referee	remonstrate

"Original B/L mailed", Have 3 B/P made of each. Did you call up Jackson?

Not what we give, but what we share, for the gift without the giver is bare.

LESSON 20

sabbath	sarcasm	security	sleepwalking
sagacious	satisfaction	shadow	smuggle
sanatorium	saturday	shrinkingly	snapping
sapient	screaming	simultaneously	soliloquy

Riches come better after poverty than poverty after riches. Who toils with pain will eat with pleasure.

LESSON 21

tabernacle	telephone	theosophy	together
tactics	tentaculiferous	thermetograph	traffic
tasmanian	terrible	thirteenth	transparently
teachable	testament	thorough	trickiness

For the sake of one good action a hundred evil ones should be forgotten.

A man is known by the company he keeps.

LESSON 22

ubiquitous	unapproachable	unfeminine	unsophisticated
ulterior	unblemished	unimportant	upholsterer
umbrageous	undealing	unkempt	upright
unaccompanied	undergraduate	unseemly	uproarious

1235 1240 pm 23 1897 1148 am. 9600 Yes? No? "Cook"

Do not despise homely, disagreeable tasks. The stag in the fable admired his horns and blamed his feet. But when the hunter came his feet saved him; and afterwards, caught in the thicket, his horns destroyed him.

LESSON 23

vacant	valhalla	vaporizable	vehement
vagabond	vampire	varicose	venerate
vagrant	vanguard	variegate	vengeance
valentine	vanquish	vegetation	venomously

7869 54721 186235 01010 23 K.L. 41 K.L. 23 B/L

He who does not soar high will suffer the less by a fall.

LESSON 24

waggishness	wallflower	wealthy	windage
wainscot	wanderer	weighty	winsome
waist	warehouseman	welcome	womankind
walk	warship	whenever	wordbook

98-11-11, 3-5-8, B/L, 12, 13, 35, 79, 63, 84, 92, 1100

We call our fathers fools, so wise we grow; our wiser sons, no doubt, will call us so.

LESSON 25

xanthic	xerophthalmia	
xanthochroi	xylocarpous	xylograph

A great man is always willing to be little. While he sits on the cushion of advantages he goes to sleep. When he is pushed, tormented, defeated, he has a chance to learn something; he has been put on his wits, on his manhood; he has gained facts; learns his ignorance; is cured of the insanity of conceit; has got moderation and real skill.

LESSON 26

yacht	yard	yellow	yesterday	yoke
yankee	yearbook	yeoman	yielding	youngster

A rash man provokes trouble; but when the trouble comes he is no match for it. Love of gain turns wise men into fools.

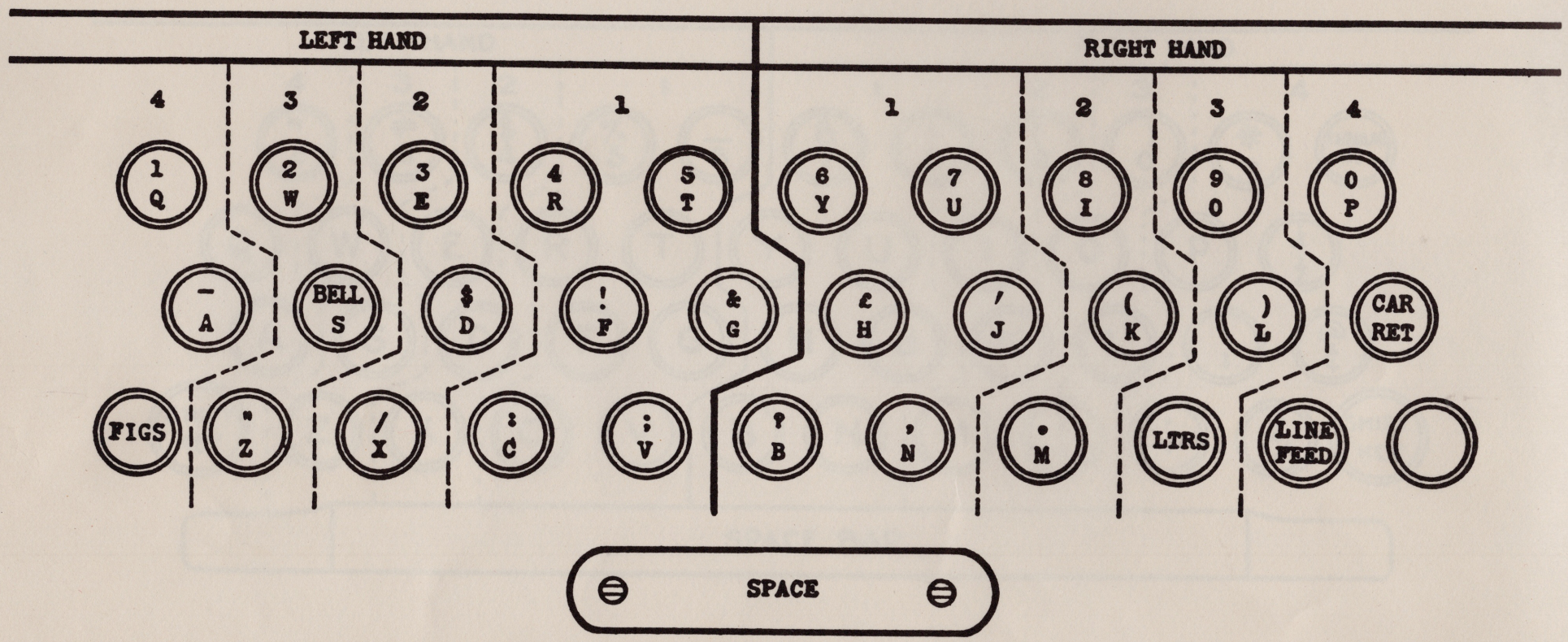
LESSON 27

zareba	zeal	zero	zirconium	zoology
zax	zemindar	zeuglodon	zodiac	zoroaster

What is told in the ear is often heard a hundred miles off.

A clever man turns great troubles into little ones and little ones into none at all.

TELETYPE KEYBOARD CHART



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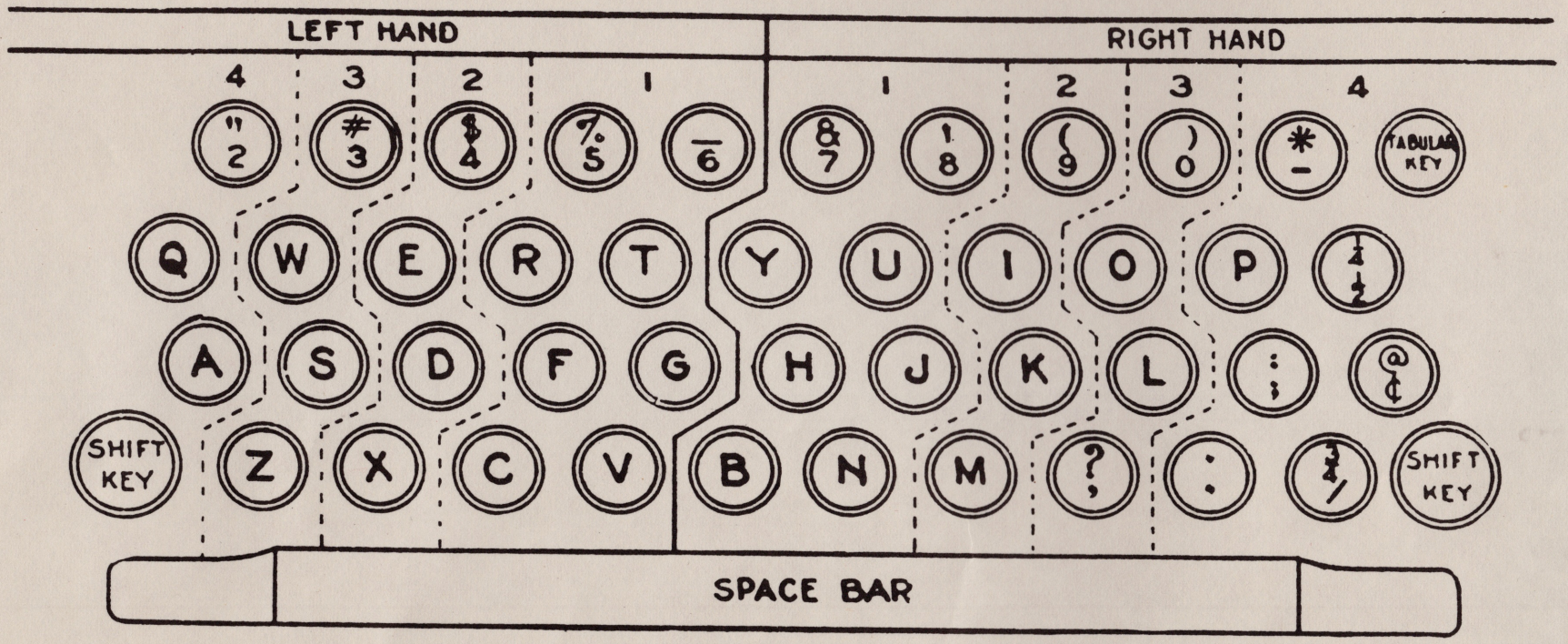
TYPEWRITER KEYBOARD CHART



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